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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,472	11/28/2003	Mirjana Popovic	1244.43309X00	7984

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EXAMINER

SWERDLOW, DANIEL

ART UNIT PAPER NUMBER

2615

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/722,472

Applicant(s)

POPOVIC ET AL.

Examiner

Daniel Swerdlow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 27 February 2006. These drawings are acceptable.

### ***Specification***

2. Applicant's amendment filed 27 February 2006 overcomes the objection to the specification made in the prior Office action.

### ***Claim Objections***

3. Applicant's amendment filed 27 February 2006 overcomes the objections to the claims made in the prior Office action.
4. Due to an apparent typographical error the listing of claims provided with the amendment filed 27 February 2006 recites the word "amounts". In the original listing the recitation was --amount--. Since the claim is identified as original, it appears that the singular is intended. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Mäkinen et al. (US Patent 6,163,609).

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7. Regarding Claim 1, Mäkinen discloses an echo canceller (Fig. 3) that receives a reference signal (R\_IN) and converges to an estimated echo signal (EST2) of an input signal (S\_IN) according to a current set of filter coefficients (50b) via feedback of a current error signal (L\_RES2) (column 1, lines 30-34). Mäkinen further discloses: applying a set of main filter coefficients (10b) that correspond to the default coefficients claimed for generating a main filter echo estimate (EST1) that corresponds to the further echo signal claimed; subtracting (20) the main filter echo estimate (EST1) that corresponds to the further echo signal claimed from the input signal (S\_IN) to generate a further error signal (L\_RES1); and comparing the current error signal (L\_RES2) with the further error signal (L\_RES1) (Fig. 6, step 270) and in the event that the further error signal (L\_RES1) exceeds the current error signal (L\_RES2) by a threshold (K3), copying coefficients from the background (i.e., current) filter to the main (i.e., default) filter (Fig. 6, step 300).

8. Regarding Claim 2, Mäkinen further discloses the threshold factor (K3) being 0.5 (column 8, lines 27-28). As such, Mäkinen discloses the threshold factor as a voltage ratio of 0.5, which corresponds to a power ratio of 0.25 (because power is proportional to the square of the voltage) and therefore to 6dB (because  $10 \log 0.25 = -6$ ).

***Allowable Subject Matter***

9. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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10. Regarding Claim 3, Mäkinen further discloses coefficient copying only when a copying counter has reached a count of K4 (Fig. 6, step 290, 300). Mäkinen further discloses a value of K4 being 160 samples and every other sample being counted (column 7, lines 64-65). As such, Mäkinen discloses copying only when the further error signal (L\_RES1) exceeds the current error signal (L\_RES2) by the threshold (K3) for 320 sample periods. At the sampling rate of 8000 samples per second disclosed in Mäkinen (column 9, lines 3-7), this equates to 40 ms. Therefore, Mäkinen anticipates all elements of Claim 3 except the 300 ms interval. US Patent 6,219,418 to Eriksson et al. discloses an echo canceller that replaces coefficients when an alternative set of coefficients produces a superior result for an interval of 2047 samples (i.e., 256 ms) (Fig. 7, steps 500-730; column 6, lines 24-32). US patent 6,865,270 to Troxel discloses an echo canceller that replaces coefficients when an alternative set of coefficients produces a superior result for an interval of 250 ms (Fig. 4b; column 6, lines 15-29). However, the prior art fails to disclose or fairly suggest an echo canceller that replaces coefficients when an alternative set of coefficients produces a superior result for an interval of at least 300 ms as claimed. As such, Claim 3 is allowable matter.

### ***Response to Arguments***

11. Applicant's arguments filed 27 February 2006 have been fully considered but they are not persuasive.

12. In the paragraph spanning pages 7 and 8 of the response filed on 27 February 2006, applicant alleges that the background filter coefficients and associated signals disclosed in Mäkinen cannot be read on the current coefficients and associated signals claimed and the main

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filter coefficients and associated signals disclosed in Mäkinen cannot be read on the default coefficients and associated signals claimed. Examiner respectfully disagrees. The main filter coefficients disclosed in Mäkinen are the coefficients used to perform the actual echo cancellation on the outgoing signal (Fig. 3, S\_OUT). As such, these coefficients are used until actively replaced and, as such, constitute default coefficients. The background filter coefficients disclosed in Mäkinen are updated when the main filter is not (column 4, lines 41-42). As such, the background filter coefficients are more suited to a present situation and, as such, constitute current coefficients.

### ***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Swerdlow  
Primary Examiner  
Art Unit 2615

ds  
19 April 2006